**Attachment 1**

**RDT SITE PRIORITIZATION FORM**
(Attach site maps and environmental data summaries)

Date 11/8/05

Site Name United Zinc Site, KSN000705026

Site Location Iola, Allen County, Kansas

Last Site Assessment Action September, 2005

Site: United Zinc #1
ID # KSN000705026
Break: 5.0
Other: 11-8-05

**Statement of Purpose / Issues to be discussed or Decision wanted**:

Discuss United Zinc Site; decide on clean-up action requested by the KDHE. Objective is to eliminate or reduce the ingestion exposure due to the presence of high lead and arsenic levels in the soils at the site.

1. *Nature and Extent of Contamination*
   *Briefly discuss contaminants of concern: Volume, Concentrations found vs. Health-based benchmarks (e.g. MCL's, EBL's, RAL's, etc.), and Media Impacted.*

**Focused Former Smelter Phase I Report: Appendix E – Maxim Technologies (for KDHE), December 2003**

Site History and Current Land Use Status:

The discovery and subsequent use of natural gas in the early 1900s led to the development of zinc and lead smelting operations in southeast Kansas. The United Zinc #1 Site (Site), located in Iola, Kansas, was one of several zinc and lead smelting operations in the area. This site was owned by United Zinc and Chemical Company from 1902-1925, and smelting occurred there from approximately 1902-1912. Historical records indicate that the Site originally housed approximately four furnaces, eight kilns, fourteen retorts, and several buildings at the east side for crushing and roasting. In addition, a six chamber acid building was co-located with a machinery kiln building.

All onsite smelter facilities, including furnaces and processing facilities, building foundations, and rail ties have been removed, and the property has been graded, leveled, and developed since the 1920's. Smelter waste piles located on the site when the operation was discontinued appear to have been mixed with local material and spread on site. The location of the waste is concentrated at the southwest corner of the current vacant lot, or west of Kansas Drive near the southern edge of the site.

The United Zinc #1 Site covers approximately 17 acres and includes ten separate parcels of land. This site is comprised of a vacant piece of property, Brenntag Southwest, Inc. (chemical distributor), MFA (farm supply distributor), Superflea Flea Market, Tucker's Flea Market, a portion of a concrete mixing facility, and a section of pastureland.

Phase I research and site reconnaissance findings indicate that smelter wastes may have been distributed through this site as a result of both smelting and improvement activities. Distinctive waste piles, slag piles, and buildings from former smelter operations are not apparent, however, a portion of the site in the southwest corner of the vacant lot does contain what appears to be a former waste pile that has been graded and leveled. Additional waste appears to have been mixed with the soil and spread throughout the site, as well as being mixed with roadbed material as part of the onsite roads Monroe Street and Kansas Drive.

The Site is bounded to the east and immediate west with commercial activities, and to the northeast and southwest with residential areas.

**Focused Former Smelter Phase II Report: Appendix F – Burns and McDonnell Engineering (for KDHE), December 2004**

Soil, smelter waste, and sediment samples on and off Site were analyzed using x-ray fluorescence technology. In addition, select soil, smelter waste, groundwater, surface water, and sediment samples were submitted for laboratory analysis. Analytes of interest were arsenic, cadmium, lead, and zinc. Data representative of high and low lead sample results from each matrix are presented below.

| **On –Site Surface Soil (SS 1-34) Unbiased Grid Sampling** | **Low lead result (ppm)** | **High lead result (ppm)** |
|---|---|---|
| XRF results | 16 *(SS-5A)* | 30,285 *(SS-17A)* |
| Laboratory results | 300 *(SS-16)* | 14,000 *(SS-34)* |
| | | |
| **On-Site Sub-Surface Soil (HS 1-7)** | | |
| **Biased Sampling per SS XRF data** | | |
| Samples taken at 1' intervals | | |
| 0-1' bgs data shown here | | |
| XRF results | 56 *(HS-6)* | 8,796 *(HS-4)* |
| Laboratory results | 6,500 *(HS-2)* | 49,000 *(HS-7)* |
| | | |
| **On-Site Slag Samples (Slag 1-4)** | | |
| XRF results | 194 *(Slag-4)* | 9,986 *(Slag-2)* |
| Laboratory results | NA | 12,000 *(Slag-2)* |
| | | |
| **On-Site Direct Push Samples (GP 1-3)** | | |
| 0-0.5' bgs data shown here | | |
| XRF results | 145 *(GP-3)* | 2,841 *(GP-2)* |
| Laboratory results | 730 *(GP-1)* | 2,500 *(GP-2)* |

| | | |
|---|---|---|
| **Off-Site Surface Soil (PS 1-8)** | | |
| XRF results | 39 *(PS-6A)* | 4,669 *(PS-5C)* |
| Laboratory results | NA | 4,300 *(PS-5)* |
| | | |
| **Off-Site Surface Water (SW 1-2)** | | |
| Laboratory results | Non detect *(SW-1)* | Non detect *(SW-3)* |
| | | |
| **Off-Site Sediment (Sed 1-2)** | | |
| XRF results | 156 *(Sed-2)* | 220 *(Sed-1)* |
| Laboratory results | 220 *(Sed-3)* | 250 *(Sed-3)* |
| | | |
| **Off-Site Background (BKG 1-2)** | | |
| Laboratory results | 0.0070 *(BKG-2)* | 0.010 *(BKG-1)* |
| | | |
| **Off-Site Sensitive Receptors (Env 1-4)** | | |
| XRF results | 89 *(Env-4B)* | 725 *(Env-1C)* |
| Laboratory results | NA | 680 *(Env-1)* |

**Residential Yard Sampling Report: Appendix G – Terranex, LLC (for KDHE), June 2005**

The residential areas to the northeast and southwest of the United Zinc #1 Site were randomly sampled in May and June of 2005. A table highlighting the three highest and three lowest lead samples in these areas is provided below.

| **Area north of United Zinc #1 Site** | **Low lead samples** | **High lead samples** |
|---|---|---|
| 418 Eisenhower Dr. | 51.2 | |
| 516 Eisenhower Dr. | 58.3 | |
| 328 Kansas Drive | 72.5 | |
| | | |
| 406 Kennedy Ave | | 415 |
| 303 N. Tennessee St. | | 632 |
| 304 N. Vermont St. | | 1,800 |
| | | |
| **Area south of United Zinc #1 Site** | **Low lead samples** | **High lead samples** |
| 101 S. Tennessee St. | 159 | |
| 28 S. Ohio St. | 174 | |
| 110 S. Tennessee St. | 223 | |
| | | |
| 16 S. Ohio St. | | 1,340 |
| 116 S. Ohio St. | | 1,660 |
| 107 S. Ohio St. | | 2,020 |

**Preliminary Removal Site Evaluation for United Zinc Smelter #1 Site, KDHE, September 2005**

Following the Phase I and II assessments and the residential yard sampling, a Preliminary Removal Site Evaluation was conducted by the Kansas Department of Health and Environment. This evaluation addressed two local areas of sensitive receptors, McKinley Elementary School and the Iola School for the Exceptional. Areas of lead above the KDHE RSK of 400 were found at the McKinley School, however, samples taken at the Iola preschool were below RSK levels.

Contaminants of concern listed below are found in surface soil, samples from the McKinley School yard were taken at a depth of 0-6", with limited number at a depth of 6-12". Samples from residential yards were taken at a depth of 0-3". Data in shaded rows exceeds RSK values.

| Contaminants of Concern | Residential soil pathway RSK (mg/kg) | Maximum Level Residential * | Maximum Level McKinley School |
|---|---|---|---|
| Lead | 400 | 2020 | 1980 |
| Arsenic | 11 | 35.7 | 34.5 |
| Cadmium | 39 | 31.3 | 30.6 |
| Zinc | 23000 | 8610 | 6370 |

* Residential data from the Residential Yard Sampling Report is provided for comparison.

2. *Site/Contaminant Stability*
*Briefly describe the means and likelihood that contamination could impact other areas/media.*

Lead and arsenic are currently present in soils above levels of concern. These contaminated soils may migrate via airborne dusts, surface runoff, percolation into groundwater, and by people and pets transporting soils or dusts into their homes from the affected areas. There are two creeks located within one mile of the site that may be affected by surface water run-off.

Cadmium and lead were detected at levels above RSK values during sampling of groundwater in 2004, however, all properties at the site are currently connected to municipal water systems, and do not use the affected groundwater for drinking water.

3. *Public/Human Health Exposures/Risks*
*Briefly discuss the exposure risk(s), such as - direct contact w/ media (soil, water and/or air). Inhalation risks (vapor intrusion concerns), synergistic effects of multiple contaminant exposures, and population affected should be presented.*

Primary exposure route for lead and arsenic is ingestion from direct contact with soil or other contaminated media. Soils with lead and arsenic levels above RSK values have been found in residential yards and one school yard. The presence of these contaminants poses a risk of exposure to sensitive receptors (i.e. children) in the effected area.

4. *Ecological Risks*

Contaminants of interest may have migrated to groundwater and surface water sediments in the area of this site. Cadmium and lead were detected at levels above KDHE groundwater pathway RSK levels during sampling of groundwater in 2004.

During sediment sampling of a surface water creek in 2004, cadmium was detected at a level above the soil pathway RSK, and arsenic was detected at levels above soil to groundwater protection pathway RSK values.

| **Contaminant of Concern** | **Groundwater pathway RSK (mg/L)** | **2004 groundwater sample result (mg/L) *** | **Soil pathway RSK (mg/kg)** | **Soil to groundwater Protection pathway RSK (mg/kg)** | **2004 sediment sample result (mg/kg) **** |
|---|---|---|---|---|---|
| Lead | 0.015 | 0.020 | | | |
| Cadmium | 0.005 | 0.0068 | | | |
| Cadmium | 0.005 | 0.0073 | 39 | | 71 |
| Arsenic | | | 11 | 5.84 | 6.6 |
| Arsenic | | | 11 | 5.84 | 6.2 |

* Temporary piezometers installed in three direct-push borings (14-16 ft. depth), groundwater samples collected from 1" diameter PVC piezometers on November 5, 2004.

**Sediments collected from two streams near the site.

5. *Known State/Public Concerns or Issues*
*Briefly discuss any concerns or issues that have been raised by the local leadership, the affected community, and State or other public officials.*

The state of Kansas has requested that EPA conduct a time-critical removal action at this site. The state of Kansas also requests the opportunity to conduct the post-removal site assessment.

6. *Costs/Options:*
*Provide a rough estimate of the total costs involved for each proposed course of action being considered. Include all estimated costs (e.g., sampling, analysis, response action, long-term costs, etc.).*

Residential areas:

4 residential yards with lead ppm > 1200
14 residential yards with lead ppm > 400

McKinley School:
3 samples with lead ppm > 1200

(School yard west side)
39 samples with lead ppm > 400
(School yard perimeter)

Entire school yard ~ 10 residential lots or 5 double lots
Perimeter of school yard ~ 5 residential lots

| | | |
|---|---|---|
| **Option 1:**<br>**Phase 1 – Remove soil with lead concentration >1200**<br>**Phase 2 – Remove soil with lead concentration 400 - 1200** | | |
| **Soil lead concentration > 1200 ppm lead**<br>**Remove/replace 4 residential yards and west side of school yard** | | |
| **Phase 1** | | |
| Residential yards | 4 x $15,000 | 60,000 |
| West side of school yard | 2 x $15,000 | 30,000 |
| **Sub-Total Cost** | | **$ 90,000** |
| **Soil lead concentration 400-1200 ppm**<br>**Remove/replace 14 residential yards and south and east side of school yard** | | |
| **Phase 2** | | |
| Residential yards | 14 x 15,000 | 210,000 |
| South and east side of school yard | 3 x 15,000 | 45,000 |
| **Sub-Total Cost** | | **$ 255,000** |
| **Total Cost** | | **$ 345,000** |
| **Option 2:**<br>**Remove/replace 18 residential yards and perimeter of school yard** | | |
| Residential yards | 18 x $15,000 | 270,000 |
| Perimeter of school yard | 5 x $15,000 | 75,000 |
| **Total Cost** | | **$ 345,000** |

**Politics:**

There are additional yards that have yet to be sampled that may be contaminated with lead above health-based levels of concern. This fact will increase the total costs for this removal action, potentially up to one million dollars.

A meeting has been scheduled with the City of Iola on November 22, 2005 with the intent of announcing EPA future plans.

***RDT Decision:**

The lead contamination levels present in residential yards warrant a time-critical removal action consideration; however, additional information is necessary before the removal action is initiated.

**Action Items**

1. **CNSL** - Assign an attorney to the site. CNSL will assess the thoroughness of the KDHE PRP search activities and determine next steps.

2. **SUPR Removal Program** - Initiate a federal-lead (EPA) removal site evaluation to supplement the site assessment information gathered by KDHE. The information collected will better delineate the extent of contamination (the number of contaminated yards) and assess risk.
    a. Future assessment activities (conducted by KDHE and USEPA) at lead-contaminated sites must follow the OSWER Directive #9200.4-27P, dated August 1998, ***Clarification to the 1994 Revised Interim Soil Lead (Pb) Guidance for CERCLA sites and RCRA Corrective Action Facilities*** and OSWER Directive #9285.7-50, dated August 2003, ***Superfund Lead-Contaminated Residential Soils Handbook.*** More specifically, soil samples must be collected from the surface (0-1 inch) to appropriately characterize human-health risk.
    b. Coordinate with KDHE and local Health Department officials to determine if there is any existing information related to blood-lead levels in children. Collect the latest census data available and quantify the number of children (and their ages) residing in homes where soil lead concentrations are > 1,200 ppm and > 400 ppm, respectively.
    c. Determine bioavailability of lead contaminating residential yards and the smelter site (slag/chat).
    d. Determine the current availability and use of the smelter slag/chat in the area.
    e. Confirm the prevailing wind direction and pattern of airborne smelter deposition.
    f. Assess the extent and depth of lead contamination on the smelter operation site itself to better evaluate removal action options and total project cost.
    g. Assess sediment and water quality sample collection activities that have been completed. Work closely with WWPD and KDHE to determine the acute and chronic water quality standards are for streams and tributaries in the area (eco-risk assessment).
    h. Work up a more accurate cost estimate, based on additional information collected during the EPA removal site evaluation.
3. Assess the site sampling protocols currently in use by the KDHE.
    a. Example – KDHE surface samples collected for the state-lead removal site evaluation were taken at 0-3" depth; for risk assessment purposes, the surface soil samples should have been collected from 0-1" depth. Make sure the recommendations for quadrant sampling are being utilized when assessing lead contamination in residential yards (vs. grab samples). Communicate site assessment sampling expectations with KDHE. See 2. a. above
4. Coordinate with KDHE, local health Department, Bruce Morrison, FFSE (RPM), Mike Berringer WWPD/DISO (toxicologist) in the development of the site-specific sampling plan that will be part of the EPA Removal Site Evaluation (RSE).

**RDT Members Present:**

1. Ken Buchholz/Katy Miley
2. Craig Smith
3. Dan Shiel
4. Gene Gunn
5. Bill Pedicino
6. Jeff Field
7. Mary Carter
8. Bob Jackson
9. Glenn Curtis
10. Janice Kroone
11. Jeremy Johnson
12. Mike Berringer
13. Terri Johnson

**Date:** _____

* If consensus cannot be reached in the RDT session, then action items will be established, i.e., collect additional information necessary in making a decision. Upon completion of the action items the Project Manager can request that the RDT reconvene to make a decision. It is the site managers responsibility to share the RDT decision with the state and to place the RDT decision or RDT action items in the official site file in the Superfund Records Center.